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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/719,020

11/24/2003

Akira Matsuda

032130

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38834

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05/26/2006

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EXAMINER

LAVILLA, MICHAEL E

ART UNIT

PAPER NUMBER

1775

DATE MAILED: 05/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/719,020

Applicant(s)

MATSUDA ET AL.

Examiner

Michael La Villa

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:
2. The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
3. Claims 1-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.
4. Regarding Claim 1, it is unclear how applicant derives antecedent support for the claimed concentration of "sulfamic acid or its salts." At page 7, line 8, the Specification refers to these concentrations in the context of "nickel sulfamate," but not with respect to sulfamic acid or other salts. Therefore, it is unclear how applicant considers the Specification to provide antecedent support for the invention as now claimed.
5. The following is a quotation of the second paragraph of 35 U.S.C. 112:
6. The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
7. Claims 5-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Regarding Claims 5-7, it is unclear what is the claimed method. To the extent that any steps are described in the respective claims, it is unclear what is to be done and what outcome is to be achieved. For example, Claim 5 refers to "said thin resistance layer is formed in a range of bath temperature of 30 to 80°C." What step(s) must be done by the claimed method and what outcome is to be achieved? Must the thin resistance layer be formed from the bath contents of one of Claims 1-4? Must the layer be electrodeposited? Must a thin resistance plated layer on a conductive base be achieved?
9. Regarding Claims 8-10, lines 1 and 2 of each, it is unclear what is the relationship between the "a resistance layer" of the preamble and the "a thin resistance layer" of the body of the claim. Is the claimed article to possess a "thin resistance layer"?
10. Regarding Claims 11-13, line 2 of each, it is unclear what is the antecedent basis of the phrase "the resistance layer." Is this the same as the "thin resistance layer"?
11. Regarding Claims 14-19, last line of each, it is unclear what is meant by the phrase "with the resistance layer at the base at the inside." It is unclear what is the claimed structural arrangement of the insulating substrate, the conductive base, and the thin resistance layer.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

13. A person shall be entitled to a patent unless –
14. (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
15. Claims 5-10 and 14-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Kiyokawa USPN 5,961,808. Kiyokawa teaches plating a conductive base by electrolysis of a plating bath comprising nickel sulfamate, phosphoric acid, and phosphorous acid, wherein the pH is 1.5 and the bath temperature is 50°C and wherein the claimed amount of nickel sulfamate (MW=251) is present. While the bath compositions of Claims 1-4 are not taught or suggested in Kiyokawa, the claimed articles of the rejected claims have not been demonstrated to not encompass the disclosed articles of the prior art, notwithstanding the absence of a teaching of the compositions of Claims 1-4. With respect to method claims, these are rejected because their scope is indefinite, for the reasons presented in the section 112, second paragraph rejections above, and may therefore encompass the methods of Kiyokawa.

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

18. Claims 5-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Rice et al. USPN 4,888,574 in view of Kazanovtse et al. (WPI World Patent Information Derwent, Vol. 29) for the reasons of record in the Office Action mailed on 14 September 2005.

19. Claims 1, 3, and 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Atobe JP 59-50190. Atobe teaches a NiP electroplating bath comprising nickel sulfamate, phosphoric acid, and phosphorus acid, wherein the claimed amounts of these ingredients is suggested as effective. See Atobe (Abstract and corresponding text). Atobe may not exemplify compositions having the claimed relative amounts of nickel sulfamate, phosphoric acid, and phosphorous acid. However, Atobe suggests a range of effective amounts of each that would be encompassed by the claimed amounts. It would have been obvious to one of ordinary skill in the art at the time of the invention to form a coating bath with claimed amounts of nickel sulfamate, as Atobe suggests that such amounts are effective for electroplating NiP plating layers. It would have been obvious to one of ordinary skill in the art at the time of the invention to form a coating bath with

the claimed amounts of phosphoric acid (MW=98) and phosphorus acid (MW=82), as Atobe suggests that such amounts are effective for electroplating NiP plating layers. For example, since Atobe suggests 100 g/l of phosphoric acid as effective and since the molecular weight of phosphoric acid is 98 and the atomic weight of phosphorus is 31, such a solution would comprise about 31 g of phosphorus, meeting the claimed requirement. The claimed pH, bath temperature, and plating current density are also disclosed.

Response to Amendment

20. In view of applicant's amendments and arguments, applicant traverses the section 103 rejection over Rice in view of Kazanovtse of the Office Action mailed on 14 September 2005. Applicant points out that neither Rice nor Kazanovtse teaches the claimed bath compositions of Claims 1-4. While this characterization of Rice and Kazanovtse appears to be correct, the rejected claims encompass prior art articles even when those articles are formed by compositions outside the scope of Claims 1-4 unless the presence of those compositions and related product-by-process limitations necessarily result in products that do not encompass the prior art. For the reasons discussed below with respect to the Declaration, applicant has not demonstrated that the prior art articles are necessarily not encompassed by the claimed product-by-process limitations. With respect to method claims, these remain rejected because their scope is indefinite for the reasons presented in the section 112, second paragraph rejections above.

21. Applicant has submitted a Declaration by Inventor Matsuda on 10 March 2006.

The Declaration is provided with the aim of demonstrating that the superiority of the claimed invention. Declarant reports two additional comparative examples, in which the amount of nickel sulfamate is outside of the claimed range. For the provided examples, the resulting plating is poor in uniform appearance in contrast to provided examples of the inventive articles reported in Table 1. As well, other measured properties compare unfavorably to the inventive articles. While applicant's evidence indicates qualitative differences between demonstrated inventive articles and provided comparative examples, it is unclear whether these differences are obtained over the entire range of claimed nickel ions, sulfamic acids and salts, and claimed phosphorus containing acids and salts. Moreover, it is unclear to what extent these differences are a consequence of the specific fabrication conditions utilized and not claimed, including other bath species and their relative amounts, current density and time, pH, and bath temperature. Hence, applicant has not demonstrated that claimed articles defined by the claimed product-by-process limitations, including the bath compositions of Claims 1-4, necessarily do not encompass the prior art.

22. A translation of Atobe JP 59-50190 has been ordered from Translations Branch.

Conclusion

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael La Villa whose telephone number is

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(571) 272-1539. The examiner can normally be reached on Monday through Friday.

24. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

25. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael La Villa
23 May 2006


MICHAEL E. LAVILLA PH.D.
PRIMARY EXAMINER